

REMARKS

In the Office Action, the Examiner rejected claims 25-29 and 32-36 (renumbered) under 35 USC 103 and claim 30 (renumbered) under 35 USC 112. The rejections are fully traversed below.

Claims 1-14, 16-23 and 30-60 have been amended (claims 30-60 have been renumbered to 25-59). Thus, claims 1-59 are pending in the application. Reconsideration of the application is respectfully requested based on the following remarks.

Election/Restriction

The undersigned affirms the election of group III, claims 25-36 (renumbered).

Information Disclosure Statement

The Examiner is requested to reconsider the exclusion of the reference "Toughbook 28." The portion of this reference that caused it to be listed was the portion that reads "Shock-mounted, removable HDD in stainless steel case" in the section titled "Durability Features."

Drawings

The drawings and specification have been amended to overcome the objection, i.e., the term "frame component 248" has been added to the specification. The specification now reads, "...the frame component 248 having a base member 250 and a top cover 252." The terms base member 250 (portions thereof) and cover 252 generally correspond to the bottom plate and top plate, respectively. In addition, the reference numeral 248 has been added to Fig. 5.

Specification

The specification has been amended to overcome the objections, i.e., the attorney docket number has been replaced with the appropriate application numbers.

Claim Objections

The claims have been amended to overcome the objections, i.e., the claims have been renumbered, and the term “disk” has been changed to “disc”.

ISSUES UNDER 35 USC 112(1)

Claim 30 has been rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Applicant respectfully disagrees. Although not expressly stated in the specification as bottom plate and top plate, support for “a frame component including a bottom plate and a top plate, the top plate being attached to the bottom plate via a plurality of structural arms extending therebetween, the bottom plate being configured to support the drive components and the top plate being configured in part to block laser light from emitting from the enclosureless optical disc drive” can be found between pages 22 – 28 (as originally filed).

Support for frame component can be found on page 22, the first full paragraph starting on line 8, which recites:

...the enclosureless CD/DVD drive does include drive components and **frame components**...the **frame components** typically consist of structural members that support the drive components. The frame components typically take the form of a skeletal system and therefore there are many openings surrounding the drive components.

Support for a bottom plate, top plate and structural arms as well as the other elements of the claim can be found on page 23, the last paragraph starting on line 23 and continuing on page 24, which recites:

The enclosureless CD/DVD drive 232 generally includes a **base member 250** and a **top cover 252**. The **base member 250** is configured for structurally supporting the sensitive components of the drive 232 and the **top cover 252** is configured for covering the sensitive components of the

drive 232. By way of example, the **cover 252** may be arranged to block the passage of light emanating from the laser of the drive. The **base member 250** generally includes a **base portion 254** and **side portions 256** extending therefrom. The **side portions 256** include a flange portion 258 for receiving the bottom surface of the cover 252. In some cases, the flange portions 258 include a threaded receptacle for receiving a screw so as to attach the **cover 252** to the **base member 250**. Although the base member 250 and cover 252 surround the periphery of the drive components, the combination of the base member 250 and cover 252 leaves a plurality of openings therebetween. This is generally done to reduce the overall weight of the drive 232.

Even more support for structural arms can be found on page 27, the first full paragraph starting on line 8, which recites:

As shown, the first set of shock mounts 262A are disposed between the top/bottom frame wall 192/216' and a **first side portion 256A** of the **base member 250**, and the second set of shock mounts 262B are disposed between the rib 240A and a **second side portion 256B** of the **base member 250**.

Based on the above, it is believed that the rejection be withdrawn.

ISSUES UNDER 35 USC 103(a)

Claims 25-28 and 32-36 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Nakajima* (US 5,715,139) in view of *Forlenza et al.* (US 6,392,880).

Neither reference teaches or suggests “an enclosureless optical disc drive” as required by claim 25. *Nakajima* in particular fails to disclose an optical disc drive. And while *Forlenza* may disclose a CD/DVD unit 88, *Forlenza* fails to disclose an enclosureless media bay unit and more particularly an enclosureless CD/DVD unit 88. *Forlenza* is completely silent to an enclosureless CD/DVD unit 88. Since *Forlenza* is silent on this issue, it can only be assumed that *Forlenza's* media bay units and more particularly the CD/DVD unit 88 are housed within their own enclosure as is generally well known in the art. Up to the point of this invention, those skilled in the art installed CD/DVD drives, which have their own enclosure, into the base of the portable computer. As discussed in the background of the present invention, this technique unfortunately leads to redundant features. That is, the drive components of the CD/DVD drive are disposed inside a double box, i.e., an enclosure inside an enclosure, and therefore they have double features that serve the same purpose. In the case of *Forlenza*, the CD/DVD unit 88 more than

likely includes its own housing and this housing is installed into the auxiliary component housing 50 thus forming a double box. This is one problem that the present invention is trying to overcome. As stated in the background of the present invention, “While double protection may sound good, the double box tends to add unnecessary mass, volume and expense to the portable computer. These are undesirable traits that go against the current trend to make portable computers cheaper, thinner and lighter. The extra layer of material may also inhibit the dissipation of heat from the drive components...”

Support for enclosureless can be found in the specification on page 22, first full paragraph, “By enclosureless, it is meant that the CD/DVD drive does not include its own housing and thus it is thinner, lighter and cheaper than conventional CD/DVD drives.” While the optical disc drive may not include a housing (in the present invention), it does include frame components that consist of structural members that support the drive components. The frame components typically take the form of a skeletal system and therefore there are many openings surrounding the drive components. These openings may allow the passage of undesirable electronic emissions and unwanted loose particles (dust) and therefore portions of the base are thus configured to house the enclosureless optical disc drive. In claim 25, the “chassis” and the “casing” provide the enclosure for the enclosureless optical disc drive (e.g., the “enclosed region”) thereby “shielding the enclosureless optical disc from internal and external hazards” while preventing the unwanted double box. Accordingly, the rejection is unsupported by the art and should be withdrawn.

The rejections to the dependent claims should be withdrawn for at least the same reasons as above. The dependents also have additional features that are not taught by the cited references. For example, none of the references teach or suggest, “wherein the frame component includes a bottom plate and a top plate, the top plate being attached to the bottom plate via a plurality of structural arms extending therebetween, the bottom plate being configured to support the drive components, and the top plate being configured in part to block laser light from emitting from the enclosureless optical disc drive” as required by claim 30, “wherein the internal portions of the casing and chassis that form the enclosed region are configured to shield electronic emissions therein,” as required by claim 31, “wherein the enclosed region shields the enclosureless optical disc drive from dust,” as required by claim 33, “wherein the enclosed region shields laser emissions,” as required by claim 34, and “wherein the CD/DVD drive is a slot loaded CD/DVD

drive,” as required by claim 36. The Examiner is respectfully requested to make a showing of such features in the references in order to maintain the rejections to these claims.

With regards to claim 36, the Applicant disagrees with the Examiner’s assertion that it would have been obvious to one skilled in the art to select a slot loaded CD/DVD drive as the apparatus of *Nakajima* has a slot (54) for loading a disk therein and that one skilled in the art would not be motivated to destroy the slot structure of *Nakajima* to provide the portable computer (1) with a tray loaded CD/DVD drive. First, floppy drives are completely different than CD/DVD drives thus one skilled in the art would simply not select a CD/DVD drive to replace a floppy drive. Second, according to the undersigned those skilled in the art have always put tray loaded CD.DVD drives in portable computers and thus it is believed that they would destroy the slot structure of *Nakajima* to provide the portable computer with a tray loaded CD/DVD drive. The Applicant respectfully requests the Examiner to provide prior art that shows a slot loaded CD/DVD drive in a portable computer in order to maintain the rejection. This simply has not been done in the past.

Claim 29 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Nakajima* as modified by *Forlenza* et al. as applied to the claims above, and further in view of *Chee* et al (US 6,324,054).

The rejections to claim 29 should be withdrawn for at least the same reasons as above. That is, *Chee* does not overcome the deficiencies of *Nakajima* and *Forlenza*. All the references fail to teach or suggest “an enclosureless optical disc drive” as required by claim 25 from which claim 29 depends. Even though this is the case, it is still believed that *Chee* fails to disclose “a thin flexible boot configured to surround at least a portion of the enclosureless optical disc drive so as to prevent particles from reaching the drive components,” as required by claim 29. That is, while *Chee* may disclose a shock absorbing material 300, *Chee* does not teach or suggest a thin flexible boot or a boot that prevents particles from reaching the drive components. For one, *Chee* is silent to preventing particles from reaching the drive components via the shock absorbing material 300, i.e., the disc drive apparatus 200 already includes a housing 202. For another, the shock absorbing material is used to prevent shocks and vibrations and thus it seems a certain thickness is needed, and weight is of no concern (e.g., formed from rubber). As should

be appreciated, this goes against the trend in portable computers (thin and light). Accordingly, the rejection is unsupported by the art and should be withdrawn.

Allowable Subject Matter

Claim 31 is believed to be in a condition for allowance since the Applicant showed support for the elements described in claim 31 for which the 112(1) rejection was given. Claim 31 was not rejected on any other grounds.

SUMMARY

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP

A handwritten signature in black ink, appearing to read "Hoellwarth", with a stylized initial "Q" to the left.

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APPENDIX

IN THE SPECIFICATION:

Please replace the pending paragraph, which begins on page 12, last paragraph:

Although not shown, the LCD housing 118 generally includes a housing plate and a housing frame, and the bezel 116 generally includes a bezel plate and a bezel frame. The frames are arranged to structurally support the plates. In one implementation, the plates are formed from a sheet metal such as titanium, and the frames are formed from a plastic material such carbon fiber plastic. The frames are generally arranged to surround the perimeter of the plates, i.e., they may form a portion of the walls. In one implementation, the frames are structurally attached to the plates via a structural glue so as to form a singular composite structure, as for example, the LCD housing 118 and the bezel 116. By way of example, techniques for gluing a frame to a plate may be found in U.S. Patent Application No.: [] **09/821,784**, entitled "COMPUTER ENCLOSURE," [(Attorney Docket No.: APL1P210),] filed on 03/28/01, which is herein incorporated by reference.

Please replace the pending paragraph, which begins on page 18, last paragraph:

In addition, the top plate 170 is electrically bonded to the top frame 172 and the bottom plate 174 is electrically bonded to the bottom frame 176. In one embodiment, a conductive paste is used to attach the top frame 172 to the top plate 170 and to attach the bottom frame 176 to the bottom plate 174 so as to electrically seal the interfaces therebetween. The conductive paste preferably exhibits good electrical characteristics and good adhesion between the conductive layer disposed on the inner surfaces of the frames and the top and bottom plates 170, 174. Like the glue, the conductive paste generally has two states – a compliant state and a rigid state. By way of example, techniques for structurally and electrically gluing a frame to a plate may be found in U.S. Patent Application No.: [] **09/821,784**, entitled "COMPUTER ENCLOSURE," [(Attorney Docket No.: APL1P210),] filed on 03/28/01, which is herein incorporated by reference.

Please replace the pending paragraph, which begins on page 23, last paragraph:

Referring to Figs. 5-7, the enclosureless CD/DVD drive 232 is configured for placement within the base 102 and more particularly between portions of the top case 103, bottom case 105 and rib chassis 238. The enclosureless CD/DVD drive 232 generally includes **a frame component 248** **having** a base member 250 and a top cover 252. The base member 250 is configured for structurally supporting the sensitive components of the drive 232 and the top cover 252 is configured for covering the sensitive components of the drive 232. By way of example, the cover 252 may be arranged to block the passage of light emanating from the laser of the drive. The base member 250 generally includes a base portion 254 and side portions 256 extending therefrom. The side portions 256 include a flange portion 258 for receiving the bottom surface of the cover 252. In some cases, the flange portions 258 include a threaded receptacle for receiving a screw so as to attach the cover 252 to the base member 250. Although the base member 250 and cover 252 surround the periphery of the drive components, the combination of the base member 250 and cover 252 leaves a plurality of openings therebetween. This is generally done to reduce the overall weight of the drive 232. In one embodiment (as shown in Fig. 5), the cover 252 includes an extension 252A for covering the moving laser underneath (typically this is not done because conventional drives have an enclosure that already serves this function). As should be appreciated, it is generally desirable to block laser light from emanating outside the drive so as to meet computer standards. In one implementation, the base member 250 is formed from suitable material such as stainless steel and the cover 252 is formed from a suitable material such as aluminum.

IN THE CLAIMS

1. (Once Amended) [A computing device,] **The portable computer as recited in claim 25 further** comprising:
 - an LCD display;
 - an LCD housing configured to cover at least a portion of the LCD display;
 - a shock mount assembly configured to reduce impacts to the LCD display, and to position the LCD display relative to the LCD housing, the shock mount assembly including a

plurality of shock mounts, which are attached to the LCD display, and which rest in a portion of the LCD housing.

2. (Once Amended) The **[computing device] portable computer** as recited in claim 1 wherein the LCD housing includes a plurality of mounting holes, and wherein each of the plurality of shock mounts includes a resilient member having a first segment and a second segment, the first segment being larger than the second segment, the first segment being disposed between the LCD display and the LCD housing and the second segment being disposed inside one of the mounting holes.

3. (Once Amended) The **[computing device] portable computer** as recited in claim 2 wherein the first segment fills a gap formed between the LCD display and LCD housing, and wherein the second segment fills the mounting hole of the LCD housing.

4. (Once Amended) The **[computing device] portable computer** as recited in claim 3 wherein a distal end of the first segment abuts to a side of the LCD display, a proximal end of the first segment abuts to a side of the LCD housing, and an outer periphery of the second segment abuts to an inner periphery of the mounting hole of the LCD housing.

5. (Once Amended) The **[computing device] portable computer** as recited in claim 1 wherein a first set of shock mounts are attached to a first side of the LCD display, and wherein a second set of shock mounts are attached to a second side of the LCD display, the second side being opposite the first side.

6. (Once Amended) The **[computing device] portable computer** as recited in claim 1 wherein the shock mount assembly holds the LCD display in the X, Y and Z directions.

7. (Once Amended) The **[computing device] portable computer** as recited in claim 1 wherein the LCD display includes an LCD panel and an LCD frame, the LCD frame being attached to the LCD panel and defining the side of the LCD display, and wherein the LCD housing includes a wall that is positioned substantially next to the side of the LCD display so as to form a gap therebetween.

8. (Once Amended) The **[computing device] portable computer** as recited in claim 7 wherein the LCD housing wall includes a plurality of mounting holes, and wherein each of the plurality of shock mounts includes a resilient member having a first segment and a second segment, the first segment being larger than the second segment, the first segment being disposed between the LCD display and the LCD housing and the second segment being disposed inside one of the mounting holes.

9. (Once Amended) The **[computing device] portable computer** as recited in claim 8 wherein a distal end of the first segment abuts to a side of the LCD frame, a proximal end of the first segment abuts to a side of the wall of the LCD housing, and an outer periphery of the second segment abuts to an inner periphery of the mounting hole of the wall of the LCD housing.

10. (Once Amended) The **[computing device] portable computer** as recited in claim 9 wherein the shock mounts include a fastener for attaching the resilient member to the LCD frame.

11. (Once Amended) The **[computing device] portable computer** as recited in claim 10 wherein the fastener is a screw.

12. (Once Amended) [A] **The portable computer as recited in claim 25 wherein the casing and chassis are structural members that help form an enclosure of the base, the portable computer further** comprising:

[a structural member configured to support the portable computer;]

[an optical disk drive including drive components and structural components configured to support the drive components];

a shock mount assembly configured to reduce impacts to the optical **[disk] disc** drive, and to position the optical **[disk] disc** drive relative to the structural member, the shock mount assembly including a plurality of shock mounts, which are attached to the structural components of the optical **[disk] disc** drive, and which rest in a portion of the structural member.

13. (Once Amended) The portable computer as recited in claim 12 wherein the structural member includes a plurality of mounting holes, and wherein each of the plurality of shock mounts includes a resilient member having a first segment and a second segment, the first segment being larger than the second segment, the first segment being disposed between the

structural component of the optical **[disk] disc** drive and the structural member and the second segment being disposed inside one of the mounting holes.

14. (Once Amended) The portable computer as recited in claim 13 wherein the first segment fills a gap formed between the structural component of the optical **[disk] disc** drive and the structural member, and wherein the second segment fills the mounting hole of the structural member.

16. (Once Amended) The portable computer as recited in claim 12 wherein a first set of shock mounts are attached to a first side of the structural component of the optical **[disk] disc** drive, and wherein a second set of shock mounts are attached to a second side of the structural component of the optical disk drive, the second side being opposite the first side.

17. (Once Amended) The portable computer as recited in claim 12 wherein the shock mount assembly holds the optical **[disk] disc** drive in the X, Y and Z directions.

18. (Once Amended) The portable computer as recited in claim 12 wherein the structural member is a portion of **[a computer enclosure] the casing** that houses the internal components of the portable computer and a portion of **[a computer] the** chassis used to support the **[computer enclosure] casing**, and wherein the structural component of the optical **[disk] disc** drive includes a plurality of tabs that are positioned substantially next to a side of the **[computer enclosure] casing** and/or the **[computer]** chassis so as to form a gap therebetween.

19. (Once Amended) The portable computer as recited in claim 18 wherein the **[computer enclosure] casing** and/or **[computer]** chassis includes a plurality of mounting holes, and wherein each of the plurality of shock mounts includes a resilient member having a first segment and a second segment, the first segment being larger than the second segment, the first segment being disposed between the tab of the structural component and the side of the **[computer enclosure] casing** or **[computer]** chassis and the second segment being disposed inside one of the mounting holes of the **[computer enclosure] casing** or **[computer]** chassis.

20. (Once Amended) The portable computer as recited in claim 19 wherein a distal end of the first segment abuts to a side of the tab, a proximal end of the first segment abuts to a side of the **[computer enclosure] casing** or **[computer]** chassis, and an outer periphery of the second

segment abuts to an inner periphery of the mounting hole of the [computer enclosure] casing or [computer] chassis.

23. (Once Amended) The portable computer as recited in claim 12 wherein the optical [disk] disc drive is a CD/DVD drive.

[30] 29. (Once Amended) The portable computer as recited in claim 25 further comprising a thin flexible boot configured to surround at least a portion of the enclosureless optical disc drive so as to prevent particles from reaching the drive components.

[31] 30. (Once Amended) The portable computer as recited in claim 25 wherein the frame component includes a bottom plate and a top plate, the top plate being attached to the bottom plate via a plurality of structural arms extending therebetween, the bottom plate being configured to support the drive components, and the top plate being configured in part to block laser light from emitting from the enclosureless optical disc drive.

[32] 31. (Once Amended) The portable computer as recited in claim 25 wherein the internal portions of the casing and chassis that form the enclosed region are configured to shield electronic emissions therein.

[33] 32. (Once Amended) The portable computer as recited in claim 25 wherein the chassis is disposed within the portable computer enclosure.

[34] 33. (Once Amended) The portable computer as recited in claim 25 wherein the enclosed region shields the enclosureless optical disc drive from dust.

[35] 34. (Once Amended) The portable computer as recited in claim 25 wherein the enclosed region shields laser emissions.

[36] 35. (Once Amended) The portable computer as recited in claim 25 wherein the optical [disk] disc drive is a CD/DVD drive.

[37] 36. (Once Amended) The portable computer as recited in claim [36] 35 wherein the CD/DVD drive is a slot loaded CD/DVD drive.

[38] 37. (Once Amended) [A] The portable computer as recited in claim 25 wherein the casing and chassis are structural members that help form [having] an enclosure of the base, the portable computer further comprising:

[a structural member associated with the enclosure;]

a heat producing element disposed inside the [enclosure] base; and

a heat exchanger configured to thermally couple the heat producing element to one of the structural members of the enclosure,

whereby the heat from the heat producing element is spread throughout the structural member via the heat exchanger.

[39] 38. (Once Amended) The portable computer as recited in claim [38] 37 wherein the structural member is a wall of the [enclosure] casing.

[40] 39. (Once Amended) The portable computer as recited in claim [39] 38 wherein the wall of the [enclosure] casing is formed from a thermally conductive material.

[41] 40. (Once Amended) The portable computer as recited in claim [40] 39 wherein the wall of the [enclosure] casing is formed from a metallic material.

[42] 41. (Once Amended) The portable computer as recited in claim [41] 40 wherein the wall of the [enclosure] casing is formed from sheet metal.

[43] 42. (Once Amended) The portable computer as recited in claim [42] 41 wherein the wall of the [enclosure] casing is formed from titanium sheet metal.

[44] 43. (Once Amended) The portable computer as recited in claim [38] 37 wherein the structural member is [a] the chassis [used to support the enclosure].

[45] 44. (Once Amended) The portable computer as recited in claim [44] 43 wherein [the wall of] the chassis is formed from a thermally conductive material.

[46] 45. (Once Amended) The portable computer as recited in claim [45] 44 wherein the chassis is formed from a plastic material.

[47] 46. (Once Amended) The portable computer as recited in claim [46] 45 wherein the chassis is formed from carbon fiber filled plastic.

[48] 47. (Once Amended) The portable computer as recited in claim [38] 37 wherein the heat producing element is a computer chip.

[49] 48. (Once Amended) The portable computer as recited in claim [48] 47 wherein the computer chip is selected from the group consisting essentially of a processor chip, graphics chip, cache chip or a bridge chip.

[50] 49. (Once Amended) The portable computer as recited in claim [38] 37 wherein the heat exchanger comprises a heat sink that is thermally coupled to the heat producing element.

[51] 50. (Once Amended) The portable computer as recited in claim [50] 49 wherein the heat sink includes a first side having a planar surface in thermal contact with the heat producing element, and a second side having plurality of heat dissipating fins extending therefrom.

[52] 51. (Once Amended) The portable computer as recited in claim [50] 49 wherein the heat sink is positioned adjacent to the structural member so as to create a thermal path between the heat producing element and the structural member.

[53] 52. (Once Amended) The portable computer as recited in claim [50] 49 wherein the heat sink is that is thermally coupled to the structural member so as to create a thermal path between the heat producing element and the structural member.

[54] 53. (Once Amended) The portable computer as recited in claim [50] 49 wherein the heat sink is integrated into the structural member so as to create a direct thermal path between the heat producing element and the structural member.

[55] 54. (Once Amended) The portable computer as recited in claim [50] 49 wherein the heat exchanger further comprises a heat pipe that is thermally coupled to the heat sink and the structural member, the heat pipe being adapted to transfer heat from the heat sink to the structural member.

[56] 55. (Once Amended) The portable computer as recited in claim [55] 54 wherein the heat pipe is permanently attached to the heat sink and the structural member.

[57] 56. (Once Amended) The portable computer as recited in claim [55] 54 wherein the heat sink includes a heat pipe receiving portion extending through the heat sink, and wherein a portion of the heat pipe is disposed within the heat pipe receiving portion.

[58] 57. (Once Amended) The portable computer as recited in claim [57] 56 wherein the heat sink includes a first side having a planar surface in thermal contact with the heat producing element, and a second side having plurality of heat dissipating fins extending therefrom, and wherein the heat pipe receiving portion is disposed between the first and second sides.

[59] 58. (Once Amended) The portable computer as recited in claim [55] 54 wherein the heat exchanger further comprises a fan unit for generating a flow of air, and wherein the heat sink is positioned proximate the airflow region such that the flow of air passes over the heat sink.

[60] 59. (Once Amended) The portable computer as recited in claim [38] 37 wherein a plurality of heat producing elements are disposed inside the enclosure of the portable computer, and wherein the heat exchanger comprises a plurality of heat sinks and a heat pipe, the heat pipe being arranged to thermally couple each of the heat sinks to the structural member, each of the plurality of heat sinks being thermally coupled to one of the plurality of heat producing elements, whereby the heat from each of the heat producing elements is dissipated in part through the heat sink, and in part through the structural member via the heat sink and heat pipe combination.

